

IN THE CLAIMS:

Please CANCEL claims 1, 2, 4, 7, 9-10, 18-24, 26, 29-32 and 40-60, without prejudice or disclaimer.

Please AMEND the claims as indicated below:

1. (CANCELED)
2. (CANCELED)
3. (CURRENTLY AMENDED) ~~The~~ A selected-wavelength tuning apparatus ~~according to claim 2, comprising:~~
 - an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light including a plurality of lights at different wavelengths multiplexed together, and branching the WDM light into a selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;
 - a radio-frequency signal generating means for generating said radio-frequency signal;
 - a light intensity detecting means for detecting light intensity of light from said acoustic optical tunable filter; and
 - a radio-frequency signal controlling means for controlling said radio-frequency signal generating means so as to select light of a predetermined wavelength in accordance with an output of said light intensity detecting means, wherein
 - said radio-frequency signal controlling means comprises
 - a maximum value discriminating means for discriminating the maximum value of said light intensity with respect to light of a predetermined wavelength by receiving said light intensity from said light intensity detecting means while changing the frequency of said radio-frequency signal generated by said radio-frequency signal generating means, and
 - a frequency controlling means for controlling said radio-frequency signal generating means so as to generate the radio-frequency with the frequency which makes the maximum light intensity discriminated by said maximum value discriminating means,

generated by said frequency controlling means with said radio-frequency signal.

4. (CANCELED)

5. (CURRENTLY AMENDED) ~~The~~ A selected-wavelength tuning apparatus comprising: ~~according to claim 1,~~

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light including a plurality of lights at different wavelengths multiplexed together, and branching the WDM light into a selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;

a radio-frequency signal generating means for generating said radio-frequency signal;
a light intensity detecting means for detecting light intensity of light from said acoustic optical tunable filter; and

a radio-frequency signal controlling means for controlling said radio-frequency signal generating means so as to select light of a predetermined wavelength in accordance with an output of said light intensity detecting means, wherein

said radio-frequency signal controlling means further comprises a reference signal adding means for adding a reference signal whose wavelength is known to an optical input side of said AOTF, and

said radio-frequency signal controlling means detects said reference signal from the output of said light intensity detecting means and computes the relationship between the selected-wavelength of said AOTF and the radio-frequency based on the detecting result.

6. (PREVIOUSLY PRESENTED) The selected-wavelength tuning apparatus according to claim 5, wherein the wavelength of said reference signal is a wavelength at an edge of a wavelength band for transmitting said WDM light.

7. (CANCELED)

8. (CURRENTLY AMENDED) ~~The~~ A selected-wavelength tuning apparatus comprising:

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light including a plurality of lights at different wavelengths multiplexed together, and

branching the WDM light into a selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;

a radio-frequency signal generating means for generating said radio-frequency signal;

a light intensity detecting means for detecting light intensity of light from said acoustic optical tunable filter;

a radio-frequency signal controlling means for controlling said radio-frequency signal generating means so as to select light of a predetermined wavelength in accordance with an output of said light intensity detecting means, wherein

said light intensity detecting means is an optical spectrum analyzer, and

said radio-frequency signal controlling means generates the radio-frequency signal with a known frequency and computes a relationship between the selected-wavelength and the radio-frequency based on an output of said optical spectrum analyzer; and according to claim 7, further comprising

an optical amplifier connected to an optical input side of said AOTF, wherein said radio-frequency signal controlling means ~~includes~~ has a calculating means for computing that calculates a relationship between the selected-wavelength and the radio-frequency, by utilizing the output of the optical spectrum analyzer at a time the radio-frequency signal with the known frequency is applied to the AOTF and utilizing a characteristic of amplified spontaneous emission light generated at the optical amplifier.

9. (CANCELED)

10. (CANCELED)

11. (CURRENTLY AMENDED) ~~The~~ A selected-wavelength tuning apparatus ~~according to claim 1,~~ comprising:

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light including a plurality of lights at different wavelengths multiplexed together, and branching the WDM light into a selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;

a radio-frequency signal generating means for generating said radio-frequency signal;

a light intensity detecting means for detecting light intensity of light from said acoustic optical tunable filter;

a radio-frequency signal controlling means for controlling said radio-frequency signal generating means so as to select light of a predetermined wavelength in accordance with an

output of said light intensity detecting means;

superimposing means for superimposing a low-frequency signal to said radio-frequency signal; and

tracking means for controlling said radio-frequency signal generating means so as to maintain light intensity of the light of said predetermined wavelength at the maximum by detecting said low-frequency signal from light exited from said AOTF.

12. (PREVIOUSLY PRESENTED) The selected-wavelength tuning apparatus according to claim 11, a selected-wavelength tuning filter wherein

said tracking means controls said radio-frequency signal generating means within a range of radio-frequency corresponding to a distance of said WDM light.

13. (CANCELED)

14. (PREVIOUSLY PRESENTED) A selected-wavelength tuning apparatus, comprising:

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light including a plurality of lights at different wavelengths multiplexed together, the AOTF comprising:

first polarizing means for branching the received WDM light into TM and TE mode lights,

first radio-frequency signal applying means for applying a first radio-frequency signal to a first optical waveguide which is for propagating the TM mode light branched by said first polarizing means,

second radio-frequency signal applying means, provided independently from the first radio-frequency signal applying means, for applying a second radio-frequency signal independent from said first radio-frequency applying means to a second optical waveguide for propagating the TE mode light branched by said first polarizing means, and

second polarizing means for multiplexing optical signals from said first optical waveguide to which said first radio-frequency signal has been applied and said second optical waveguide to which said second radio-frequency signal has been applied, and branching them as first and second outputs corresponding to a state of polarization; radio-frequency signal generating means for generating said first and second radio-

frequency signals independent of each other;

light intensity detecting means for detecting intensity of light from said AOTF; and

radio-frequency signal control means for controlling said radio-frequency generating means so as to cause the AOTF to select light of a predetermined wavelength from the WDM light in accordance with the output of said light intensity detecting means.

15. (ORIGINAL) The selected-wavelength tuning apparatus according to claim 14, wherein

said radio-frequency signal applying means are two radio-frequency signal applying means, of which the first radio-frequency signal applying means applies the radio-frequency signal to the TM mode light branched by said first polarizing means and the second radio-frequency signal applying means applies the radio-frequency signal to the TE mode light branched by said first polarizing means and

said radio-frequency signal generating means supplies the radio-frequency signals of different frequencies to said first and second radio-frequency signal applying means.

16. (ORIGINAL) The selected-wavelength tuning apparatus according to claim 14, further comprising third polarizing means for branching the lights exited from said first output into TM mode and TE mode lights, and wherein

said light intensity detecting means comprises a first light intensity detecting means for detecting the light intensity of TM mode light exited from said third polarizing means and a second light intensity detecting means for detecting the light intensity of TE mode light exited from said third polarizing means.

17. (CANCELED)

18. (CANCELED)

19. (CANCELED)

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21. (CANCELED)

22. (CANCELED)

23. (CANCELED)

24. (CANCELED)

25. (CURRENTLY AMENDED) The A selected-wavelength tuning apparatus

comprising: according to claim 24,

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light, and branching the received WDM light into selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;

a radio-frequency signal generating unit generating said radio-frequency signal;

a light intensity detecting unit detecting intensity of light from said acoustic optical tunable filter; and

a radio-frequency signal controlling unit controlling said radio-frequency signal generating unit so as to select light of a predetermined wavelength in accordance with an output of said light intensity detecting unit, wherein

said radio-frequency signal controlling unit comprises

a maximum value discriminating unit discriminating a maximum value of said light intensity with respect to light of a predetermined wavelength by receiving said light intensity from said light intensity detecting unit while changing the frequency of said radio-frequency signal generated by said radio-frequency signal generating unit, and

a frequency controlling unit controlling said radio-frequency signal generating unit so as to generate the radio-frequency with the frequency which makes the maximum light intensity discriminated by said maximum value discriminating unit,

said frequency controlling unit generates a frequency which is smaller than the frequency of said radio-frequency signal generated by said radio-frequency signal generating unit and

said radio-frequency signal generating unit superimposes said frequency generated by said frequency controlling unit with said radio-frequency signal.

26. (CANCELED)

27. (CURRENTLY AMENDED) The A selected-wavelength tuning apparatus comprising: according to claim 23,

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light, and branching the received WDM light into selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;

a radio-frequency signal generating unit generating said radio-frequency signal;

a light intensity detecting unit detecting intensity of light from said acoustic optical tunable filter; and

a radio-frequency signal controlling unit controlling said radio-frequency signal generating unit so as to select light of a predetermined wavelength in accordance with an output of said light intensity detecting unit, wherein

said radio-frequency signal controlling unit further comprises a reference signal adding unit adding a reference signal whose wavelength is known to an optical input side of said AOTF and

said radio-frequency signal controlling unit detects said reference signal from the output of said light intensity detecting unit and computes a relationship between the selected-wavelength of said AOTF and the radio-frequency based on the detecting result.

28. (PREVIOUSLY PRESENTED) The selected-wavelength tuning apparatus according to claim 27, wherein the wavelength of said reference signal is a wavelength at an edge of a wavelength band transmitting said WDM light.

29. (CANCELED)

30. (CANCELED)

31. (CANCELED)

32. (CANCELED)

33. (CURRENTLY AMENDED) ~~The~~ A selected-wavelength tuning apparatus according to ~~claim 23~~, comprising:

an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) light, and branching the received WDM light into selected-wavelength light and light with other wavelengths in accordance with a radio-frequency signal applied to the AOTF;

a radio-frequency signal generating unit generating said radio-frequency signal;

a light intensity detecting unit detecting intensity of light from said acoustic optical tunable filter;

a radio-frequency signal controlling unit controlling said radio-frequency signal generating unit so as to select light of a predetermined wavelength in accordance with an output of said light intensity detecting unit;

a superimposing unit superimposing a low-frequency signal to said radio-frequency

signal; and

a tracking unit controlling said radio-frequency signal generating unit maintaining the light intensity of the optical signal of said predetermined wavelength at the maximum by detecting said low-frequency signal from the optical signal exited from said AOTF.

34. (PREVIOUSLY PRESENTED) The selected-wavelength tuning apparatus according to claim 33, further comprising a selected-wavelength tuning filter wherein said tracking unit controls said radio-frequency signal generating unit within a range of radio-frequency corresponding to a distance of said WDM light.

35. (CANCELED)

36. (PREVIOUSLY PRESENTED) A selected-wavelength tuning apparatus, comprising:
an acoustic optical tunable filter (AOTF) receiving a wavelength division multiplexed (WDM) optical input, the AOTF comprising
a first polarizing unit branching the received WDM optical input into TM and TE mode lights,
a first radio-frequency signal applying unit applying first radio-frequency signal to a first optical waveguide which is propagating the TM mode light branched by said first polarizing unit,
a second radio-frequency signal applying unit applying second radio-frequency signal to a second optical waveguide propagating the TE mode light branched by said first polarizing unit, and
a second polarizing unit multiplexing optical signals from said first optical waveguide to which said first radio-frequency signal has been applied and said second optical waveguide to which said second radio-frequency signal has been applied, and branching them as first and second outputs corresponding to a state of polarization;
a radio-frequency signal generating unit generating said radio-frequency signal;
a light intensity detecting unit detecting intensity of light from said AOTF; and
a radio-frequency signal control unit controlling said radio-frequency generating unit so as to select light of a predetermined wavelength in accordance with the output of said light intensity detecting unit.

37. (PREVIOUSLY PRESENTED) The selected-wavelength tuning apparatus according to claim 36, wherein

said radio-frequency signal applying unit includes two radio-frequency signal applying units, of which the first radio-frequency signal applying unit applies the radio-frequency signal to the TM mode light branched by said first polarizing unit and the second radio-frequency signal applying unit applies the radio-frequency signal to the TE mode light branched by said first polarizing unit and

said radio-frequency signal generating unit supplies the radio-frequency signals of different frequencies to said first and second radio-frequency signal applying unit.

38. (PREVIOUSLY PRESENTED) The selected-wavelength tuning apparatus according to claim 36, further comprising a third polarizing unit branching the lights exited from said first output into TM mode and TE mode lights, and wherein

said light intensity detecting unit comprises a first light intensity detecting unit detecting the light intensity of TM mode light exited from said third polarizing unit and a second light intensity detecting unit detecting the light intensity of TE mode light exited from said third polarizing unit.

39-60. (CANCELED)